REMARKS

In the outstanding Office Action, the Examiner rejected claims 14-17 and 24-27 under 35 U.S.C. § 112, second paragraph; objected to claim 27; rejected claim 14 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,605,228 to Kawaguchi et al. ("Kawaguchi"); rejected claims 15-17, 24-26 and 29 under 35 U.S.C. § 103(a) as being unpatentable over Kawaguchi in view of U.S. Patent No. 3,850,604 to Klein ("Klein"); and rejected claims 18-20 under 35 U.S.C. § 103(a) as being unpatentable over Kawaguchi in view of Klein, and further in view of U.S. Patent No. 4,915,810 to Kestigian et al. ("Kestigian").

By this amendment, Applicants propose to amend claims 14-15, 18, 24, 27 and 29. Claims 14-29 remain pending, with claims 14-20, 24-27 and 29 presented for examination.

Information Disclosure Statement

Applicants note that the Examiner did not consider all of the documents submitted in the supplemental information disclosure statement filed August 10, 2004. Specifically, the Examiner indicated that a "full date" was required for the publications listed in the Information Disclosure Statement. However, Applicants submit that the full date is not always required to be listed, as the M.P.E.P states:

> "[e]ach publication must be identified by publisher, author (if any), title, relevant pages of the publication, and date and place of publication. The date of publication supplied must include *at least the month and year of publication*, *except that the year of publication (without the month) will be accepted* if the applicant points out in the information disclosure statement that the year of publication is sufficiently earlier than the effective U.S. filing date and any foreign priority date so that the particular month of publication is not in issue. The place of publication refers to the name of the journal, magazine, or other publication in

> which the information being submitted was published" (emphasis added). M.P.E.P. § 609 (8th ed., 2001).

Applicants hereby point out that publications with a publication year of 2000, or earlier, are sufficiently before Applicants filing date of July 10, 2001, thus the particular month is not in issue within at least the guidelines of 35 U.S.C. § 102(a). Applicants respectfully request that the Examiner consider the publications that conform with M.P.E.P. guidelines, as listed above.

Rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejected claims 14-17 and 24-27 under 35 U.S.C. § 112, second paragraph as being indefinite. Specifically, the Examiner states:

> "[t]here is no antecedent basis for 'the core layer deposition ... [m]ore importantly it is unclear what is meant by such." Office Action, page 2.

Although Applicants do not necessarily agree with the Examiner's characterization of claim 14 as being indefinite, Applicants have amended claim 14 to address the Examiner's concerns. Therefore, Applicants respectfully request the rejection of claims 14-17 and 24-27 under 35 U.S.C. § 112, second paragraph be withdrawn.

Claim objections

The Examiner objected to claim 27 under 37 CFR 1.75(c) as being of improper dependent form. Specifically, the Examiner objected to claim 27 for failing to further limit the scope of claim 14. Although Applicants do not necessarily agree with the Examiner's characterization of claim 27, Applicants have amended claim 27 to address the Examiner's concerns. Claim 27, as amended, recites, "etching the ridge structure in a silicon wafer underlying the layer of the first material." Applicants submit that the ridge

structure is formed in the layer of the first material, by "etching the ridge structure in a silicon wafer underlying the layer of the first material." Claim 27, as amended, further defines the process of "forming a ridge structure ... in a layer of a first material," as recited in claim 14, thus further limiting claim 14. Accordingly, Applicants respectfully request the objection to claim 27 be withdrawn.

Rejection under 35 U.S.C. § 102(e)

Regarding the rejection of claims 1-6, 9, and 15-23 under 35 U.S.C. § 102(e), Applicants respectfully disagree with the Examiner's arguments and conclusions as set forth in the outstanding Office Action. Accordingly, Applicants respectfully traverse this rejection.

In order to properly anticipate Applicants' claimed invention under 35 U.S.C. §102, each and every element of the claim in issue must be found, "either expressly or inherently described, in a single prior art reference." "The identical invention must be shown in as complete detail as is contained in the . . . claim. *Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)." *See* M.P.E.P. § 2131, (8th ed., 2001).

Claim 14, as amended, recites a combination including, "wherein the process excludes a separate step of patterning the core layer, and wherein the planar optical device is formed with a core layer deposit remaining on the ridge portion of the ridge structure." Kawaguchi fails to teach at least this element.

Kawaguchi teaches a process for fabricating planar optical waveguide devices. Kawaguchi, col. 1, lines 38-45. The process requires placing a photoresist in a prescribed waveguide pattern over a surface of a substrate. *Id.* at col. 5, lines 64-66. Recesses 12a (Figures 7a-7e) are formed in the substrate using an etching process. *Id.*

at col. 5, line 66- col. 6, line 2. A core layer 14' is subsequently formed on the substrate and in the recesses. *Id.* at col. 6, lines 3-10. The core layer is then *patterned*, using either polishing or etching, such that the core layer 14' *remains only in the recess* 12a, "and the core 14 and the substrate 12 jointly define a planar surface." *Id.* at col. 6, lines 16-20. The process described in Kawaguchi involves a plurality of separate steps, including, forming the core layer, doping the core layer, HIPping the assembly, and then patterning the core layer. *Id.* at col. 6, lines 6-20.

Thus, Kawaguchi fails to teach at least the element, "wherein the process excludes a separate step of patterning the core layer, and wherein the planar optical device is formed with a core layer deposit remaining on the ridge portion of the ridge structure," as recited in amended claim 14. Since Kawaguchi fails to teach each and every claim, it cannot anticipate claim 14. Accordingly, Applicants respectfully request the rejection of claim 14 under 35 U.S.C. § 102(e) be withdrawn.

Rejections under 35 U.S.C. § 103(a)

Regarding the rejection of claims 15-20, 24-26 and 29 under 35 U.S.C. § 103(a), Applicants respectfully disagree with the Examiner's arguments and conclusions as set forth in the outstanding Office Action. Accordingly, Applicants respectfully traverse this rejection.

To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. *See* M.P.E.P. §2143.03 (8th ed., 2001). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the

claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." *See* M.P.E.P. § 2143 (8th ed., 2001).

Claims 15-17, and 24-26 depend from claim 14, and thus require all of the elements of claim 14. As noted above, Kawaguchi fails to teach at least the element, "wherein the process excludes a separate step of patterning the core layer, and wherein the planar optical device is formed with a core layer deposit remaining on the ridge portion of the ridge structure," as recited in amended claim 14. Since Kawaguchi fails to teach each and every element of claim 14, Kawaguchi also fails to teach each and every element of the dependent claims.

Klein, cited for teaching "what one of ordinary skill in the art thinks of when one is to sputter glass," fails to cure the deficiencies of Kawaguchi. Office Action, page 5. Klein teaches a general method for sputtering a target using, for example, an RF discharge. Klein, col. 4, lines 3-15. Klein, however, fails to teach or suggest at least the element, "wherein the process excludes a separate step of patterning the core layer, and wherein the planar optical device is formed with a core layer deposit remaining on the ridge portion of the ridge structure," as recited in amended claim 14, and required by claims 15-17 and 24-26.

Since Kawaguchi, whether taken alone, or in combination with Klein, fails to teach or suggest each and every element of claim 14, and thus all of the elements of claims 15-17 and 24-26, a *prima facie* case of obviousness has not been established. Accordingly, Applicants respectfully request the rejection of claims 15-17 and 24-26 under 35 U.S.C. § 103(a) be withdrawn.

Furthermore, claim 27, not treated on the merits by the Examiner, also depends from claim 14, and requires all of the elements of claim 14. Since Kawaguchi fails to teach each and every element of claim 14, Applicants submit that claim 27 is at least allowable of Kawaguchi.

Claim 29

Claim 29 recites a combination including, "a second radio frequency power is applied to the ridge structure" and "wherein the process excludes a separate step of patterning the core layer." Kawaguchi, whether taken alone or in combination, fails to teach at least these elements.

As discussed above, Kawaguchi teaches a process for fabricating planar optical waveguide devices wherein a core layer is deposited and then patterned using either etching or polishing. Kawaguchi, col. 6, lines 16-20. Kawaguchi further uses a standard CVD procedure in the fabrication of the planar optical waveguide device, but does not teach or suggest the use of a first or second radio frequency power in the fabrication process. *Id.* at col. 5, lines 50-54. Thus, Kawaguchi fails to teach at least the elements, "a second radio frequency power is applied to the ridge structure" and "wherein the process excludes a separate step of patterning the core layer," as required by claim 29.

Klein fails to cure the deficiencies of Kawaguchi. As discussed above, Klein fails to teach or suggest at least the element, "wherein the process excludes a separate step of patterning the core layer." Moreover, Klein teaches the use of an RF discharge in a typical glass sputtering process. Klein, col. 4, lines 3-15. Klein, however, fails to teach or suggest at least the use of a second radio frequency power in the glass sputtering process. Thus, Klein fails to teach or suggest at least the elements, "a second radio

frequency power is applied to the ridge structure" and "wherein the process excludes a separate step of patterning the core layer," as required by claim 29.

Since Kawaguchi, whether taken alone, or in combination with Klein, fails to teach or suggest each and every element of claim 29, a *prima facie* case of obviousness has not been established. Accordingly, Applicants respectfully request the rejection of claim 29 under 35 U.S.C. § 103(a) be withdrawn.

Claims 18-20

Claim 18 recites a combination including at least the element, "wherein the process excludes a separate step of patterning the core layer." Kawaguchi, whether taken alone, or in combination, fails to teach at least this element.

As discussed above, Kawaguchi utilizes a separate patterning step to form an integral planar surface between the core layer and the recesses. Kawaguchi, col. 6, lines 16-20. Klein merely teaches a typical glass sputtering method, as discussed above, and fails to cure the deficiencies of Kawaguchi.

Kestigian further fails to cure the deficiencies of Kawaguchi. Kestigian teaches a method for forming targets for use in ion beam sputtering. Kestigian, abstract. Kestigian's method involves the formation of targets wherein plugs with different compositions can be inserted into a plurality of holes formed in the target. *Id.* at col. 3, lines 12-25. Kestigian, however, does not teach or suggest the formation of waveguides or core layers. Thus, Kestigian fails to teach or suggest at least the element, "wherein the process excludes a separate step of patterning the core layer," as recited in claim 18.

Since Kawaguchi, either taken alone or in combination with Klein and Kestigian, fails to teach or suggest each and every element of claim 18, a *prima facie* case of

obviousness has not been established. Accordingly, Applicants respectfully request the rejection of claim 18 under 35 U.S.C. § 103(a) be withdrawn.

Claims 19-20 depend from claim 18, and thus require all of the elements of claim 18. Since Kawaguchi, whether taken alone or in combination with Klein and Kestigian, fails to teach each and every element of claim 18, the references further fail to teach each and every element of the dependent claims. Thus, a *prima facie* case of obviousness has not been made. Accordingly, Applicants respectfully request that the rejection of claims 19-20 under 35 U.S.C. § 103(a) be withdrawn.

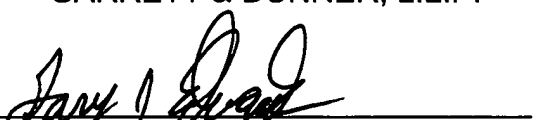
In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: March 10, 2005

By: 
Gary J. Edwards
Reg. No. 41,008